

REMARKS

In accordance with the foregoing, claims 1, 3, 10, and 13 are amended. Claims 1-15 are pending and under consideration.

BACKGROUND

An interview was conducted on April 19, 2004 with the Examiner. Applicants thank the Examiner for the interview. The interview included discussion of proposed amendments for claims 1, 3, 10, and 13, and discussion of patently distinguishing features according to aspects of the present invention, including the feature of a "pilot signal." The Substance of Interview is set forth below.

CLAIM AMENDMENTS

In the interview of April 19, 2004, the Examiner indicated that an amendment to claims 1 and 10, replacing the phrase "contained in" with "--extracted from--", did not require further search and would be entered if submitted in an amendment after final without a RCE, but that an amendment to claims 3 and 13 to recite that a first group of optical signals and a pilot signal are transmitted only once by a common arrayed-waveguide could require further search and should be submitted in conjunction with an RCE.

Claims 1 and 10 are amended to recite that a wavelength multiplexing optical apparatus includes, respectively, a light detecting means for monitoring, and a light detector to monitor a pilot signal extracted from a wavelength multiplexed signal output from an output port. (See, for example, page 9, lines 16-20).

Claims 3 and 13 are amended to recite that a first group of optical signals and a pilot signal are transmitted only once by a common arrayed-waveguide. (See pages 13-14, starting at line 29).

No new matter is presented in any of the foregoing and, accordingly, approval and entry of the amended claims are respectfully requested.

PAGE 2: REJECTION OF CLAIMS 1, 3, 10, AND 13 UNDER 35 U.S.C. §102(e) BY VAN DOORN ET AL. (U.S.P. 6,477,294)

As provided in MPEP §706.02 entitled Rejection on Prior Art, anticipation requires that the reference must teach every aspect of a claimed invention. While at the interview of April 19, 2004, the Examiner indicated that a feature of a --pilot signal-- did not, by itself, distinguish claims 1, 3, 10, and 13, Applicants submit that Van Doorn does not support an anticipatory-type rejection by not describing features recited in the present application's independent claims.

Pilot Signal Extracted From Wavelength Multiplexed Signal Output From An Output Port Not Described

Claims 1 and 10, both as amended, recite that a wavelength multiplexing optical apparatus includes, respectively, a light detecting means for monitoring, and a light detector to monitor a pilot signal extracted from a wavelength multiplexed signal output from an output port.

Van Doorn does not describe a pilot signal extracted from a wavelength multiplexed signal output from an output port. Rather, Van Doorn describes individually inputted optical signals output as a wavelength multiplexed signal, e.g., λ_1 - λ_N (cols. 2-3, starting at line 64):

input to waveguide structure 3 and passed through a number k of waveguides of the grating 2. . . . Waveguide structure 4 gathers the optical signals through grating 2 and provides optical output signals . . .

Van Doorn, further describes (col. 3, lines 5-22):

a second phased array waveguide device in the form of an arrayed waveguide grating 5 . . . between the waveguide structures 3 and 4. In FIG. 1 one of the optical wavelength signals λ_i where $i=1 \dots N$ is input at the structure 3, is splitted thereby and propagated through a number 1 of waveguides of the arrayed waveguide grating 5. Structure 4 gathers the optical signals in this additional path and demultiplexes them to reveal the signal λ_i again. . . . The amplitude or output power of the output signal in the additional path is determined by a measuring means 6.

That is, the signal that Van Doorn describes, as shown in FIG. 1, being measured is a signal input from another input port, and not a pilot signal extracted from a wavelength multiplexed signal output from an output port.

Controlling Temperature Of Arrayed-Waveguide Grating To Cancel Amount Of Wavelength Fluctuation Not Described

Claims 1, 3, 10 and 13 recite a temperature control circuit controlling the temperature of the arrayed-waveguide grating in such a manner as to cancel the amount of wavelength fluctuation occurring in the arrayed-waveguide grating and detected by monitoring the pilot signal.

All that Van Doorn describes (col. 3, lines 28-29) is that "temperature can be controlled such that the measured amplitude of the signal D_i is maximized."

First Group Of Optical Signals And Pilot Signal Transmitted Only Once By Common Arrayed-Waveguide Not Described

Claims 3 and 10 recite an arrayed-waveguide grating having a first output port outputting a multiplexed signal carrying a first group of optical signals of different wavelengths respectively input from input ports, and a second output port outputting a pilot signal input from an input port, wherein the first group of optical signals and the pilot signal are transmitted only once by a

common arrayed-waveguide.

Van Doorn does not describe a first group of optical signals and a pilot signal transmitted only once by a common arrayed-waveguide. Referring to FIG. 3, for example, Van Doorn describes a signal (col. 3, lines 47-50):

fed back in reverse direction through the optical waveguide structures 3 and 4 and one the output signals in the now reverse temperature control path is measured and used for temperature control in the optical device 1.

That is, Jansen only describes, as shown in FIG. 3, a signal that is transmitted at least two times by an arrayed-waveguide, for example, in an order through waveguide structure 3 through grating 2 through waveguide structure 4 through waveguide structure 4 through waveguide grating 5 and to waveguide structure 3.

Further, Van Doorn does not describe a common arrayed waveguide. Rather, Van Doorn describes (col. 2, lines 64-66) a multiple optical signal:

passed through a number k of wave guides of the grating 2. These waveguides have mutually different path lengths between mutually different paths.

Conclusion

Since Van Doorn does not describe features recited in claims 1, 3, 10, and 13 (all as amended), the rejections should be withdrawn and the claims allowed.

PAGES 3-4: REJECTION OF CLAIMS 4, 5, 7, 9, 11, 12, 14, and 15 UNDER 35 U.S.C. §103(a) BY VAN DOORN IN VIEW OF IWAOKA ET AL. (U.S.P. 4,893,353)

***Prima Facie* Obviousness Not Established**

Detection Of Amount of Fluctuation In Filter Characteristics Not Taught Nor Described

As provided in MPEP §2143.03 "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." *In re Royka*, 490 F. 2d 1981, (CCPA 1974).

Claims 4 and 7, and claims 11 and 14, recite respectively, a light detecting means, and a light detector, detect an amount of fluctuation in a filter characteristics of a port by detecting a swept signal light.

Claims 5 and 9, and claims 12 and 15, recite respectively, a light detecting means, and a light detector, detect the amount of fluctuation in the filter characteristics of the port at which the pilot signal is input, by comparing received light levels between the plurality of light sources.

These features are not taught by either reference, alone or in combination. Van Doorn only describes (col. 3, lines 19-22) that the "amplitude or output power of the output signal in the

additional path is determined by a measuring means 6." Iwaoka only describes (col. 27, lines 35-37) that the:

stability of the wavelength of the output light is not deteriorated at all by fluctuations in circumferential temperature.

The Examiner contends, regarding claims 4, 7, and 11, that detecting an amount of fluctuation in filter characteristics of a port by detecting swept signal light is "inherently shown by the Iwaoka et al's device." (Action at page 4). The Examiner also contends that, regarding claims 5, 9, and 12, that the:

detecting means inherently (is) shown by Iwaoka et al's device. Iwaoka et al show(s) in column 4, lines 32-47 that comparison is done between pluralities of light sources.

(Action at page 4).

Applicants respectively submit that such contentions are rejected by the USPTO as not satisfying the standards of *prima facie* obviousness necessary to support the combination of prior art references. (See, Memorandum of Stephen G. Kunin dated February 21, 2002 based on *Dickinson v. Zurko*, 527 U.S. 150, 50 USPQ 2d 1930 (1999), attached).

Conclusion

Since *prima facie* obviousness has not been established, the rejection of claims 4, 5, 7, 9, 11, 12, 14, and 15 should be withdrawn.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Preliminary Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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